

SURREBUTTAL TESTIMONY AND EXHIBIT OF
STEPHEN J. BARON
ON BEHALF OF
THE SOUTH CAROLINA OFFICE OF REGULATORY STAFF
DOCKET NO. 2019-226-E
IN RE: SOUTH CAROLINA ENERGY FREEDOM ACT (HOUSE BILL 3659)
PROCEEDING RELATED TO S.C. CODE ANN. SECTION 58-37-40 AND
INTEGRATED RESOURCE PLANS FOR DOMINION ENERGY SOUTH
CAROLINA, INCORPORATED

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.

A. My name is Stephen J. Baron and I am President and a Principal of J. Kennedy and Associates, Inc. (“Kennedy and Associates”). My business address is 570 Colonial Park Drive, Suite 305, Roswell, Georgia, 30075.

Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes. I previously provided Direct Testimony on behalf of the South Carolina Office of Regulatory Staff (“ORS”) on July 10, 2020. My Direct Testimony was in support of portions of the ORS report entitled, “Review of Dominion Energy South Carolina, Inc. 2020 Integrated Resource Plan” (the “ORS Report”) that Kennedy and Associates assisted ORS to prepare. Kennedy and Associates’ review of the Dominion Energy South Carolina, Inc. (“DESC” or the “Company”) Integrated Resource Plan (the “IRP”) included an assessment of the Company’s compliance with the statutory requirements of S.C. Code Ann. Section 58-37-40, as amended by the South Carolina Energy Freedom Act.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

1 **A.** I am responding to the Rebuttal Testimony of DESC witnesses Eric Bell and Dr.
2 Joseph Lynch regarding issues that ORS addressed in its analysis of the Company's load
3 and energy forecasting and reserve margin policy.

4 **Q. BEFORE ADDRESSING SPECIFIC ISSUES RAISED IN THE COMPANY'S**
5 **REBUTTAL TESTIMONY, WOULD YOU SUMMARIZE YOUR**
6 **UNDERSTANDING OF DESC'S POSITION WITH REGARD TO ORS'S**
7 **RECOMMENDATIONS REGARDING LOAD FORECASTING AND RESERVE**
8 **MARGIN ISSUES?**

9 **A.** ORS made three specific recommendations on load and energy forecasting issues
10 and two specific recommendations related to Reserve Margin issues. Mr. Bell, in his
11 Rebuttal Testimony on pages 18 and 19, for the most part, appears to have accepted these
12 recommendations on behalf of the Company. All of the ORS recommendations on these
13 load and energy forecasting and reserve margin issues are focused on future IRP studies,
14 not changes to the current 2020 DESC IRP.

15 Specifically, Mr. Bell states that with regard to the three load and energy forecast
16 issues, in future IRPs, the Company will provide a more thorough presentation of its load
17 and energy forecasting methodology in the IRP documents themselves, and will review its
18 residential and commercial peak load forecast methodology, including making changes to
19 the forecasts that are warranted considering long term behavioral factors. Mr. Bell also
20 agrees to expand the number of sensitivities the IRP analyzes to include both Demand Side
21 Management ("DSM") scenarios and a range of load growth sensitivity factors as
22 appropriate.

With regard to reserve margin policy issues, the Company agreed to provide a more thorough explanation for the inclusion of its treatment of the Virginia-Carolina (“VACAR”) Reserve Sharing Agreement (“RSA”) operating reserve obligation in the Company’s planning reserve margin, in future IRPs. Mr. Bell stated that if DESC continues to use two reserve margins for each season (base, peaking), an additional explanation will be provided for this approach. Mr. Bell also stated that the Company would commit to discussing the use of an optimal economic reserve margin methodology and a Loss of Load Expectation (“LOLE”) methodology with ORS and other parties (Bell Rebuttal at page 20).

**Q. IS ORS PROPOSING OR RECOMMENDING RESERVE MARGIN
METHODOLGIES THAT WOULD RESULT IN THE COMPANY BEING
UNABLE TO MAINTAIN RELIABILITY STANDARDS?**

A. No. The additional methodologies that ORS suggested the Company consider in future DESC IRPs are well established in the electric utility industry. As discussed in our Report, many large, sophisticated electric utilities utilize such methodologies to develop a planning reserve margin (for example, Duke Energy Progress, LLC, Duke Energy Carolinas, LLC, and Southern Company). The ORS recommendations were designed to provide additional analyses of the risk that is incorporated in an estimate of the utility planning reserve margin, whether based on the DESC base/peak method or more comprehensive methodologies such as an economic reserve margin analysis.

**Q. DR. LYNCH RESPONDED IN REBUTTAL TESTIMONY TO ALMOST ALL OF
THE ISSUES RAISED IN THE ORS REPORT ON LOAD AND ENERGY**

**FORECASTING. WOULD YOU SUMMARIZE YOUR UNDERSTANDING OF
THE COMPANY'S POSITION ON THESE ISSUES?**

A. Yes. First, the Company's overall response to the ORS recommendations has been positive. While Dr. Lynch disagrees with many of the specific suggestions, such as our discussion of Statistically Adjusted End Use ("SAE") modeling used by a number of electric utilities, it is my understanding that the Company is willing to consider, and potentially evaluate the use of alternative methodologies for peak load forecasting. ORS believes that the Company's residential and commercial peak load forecasts, which are driven almost exclusively by growth in the number of customers, should be expanded to include what we have characterized as long-term behavioral changes in summer and winter peak load per customer. While the Company's energy use forecast, which is based on an average kWh use per customer forecast and a customer forecast, implicitly reflects potential longer term behavioral changes in use per customer, as a result of income and price changes, no such factors are considered in the important peak load forecast.

**Q. WITH REGARD TO THE CONSIDERATION OF MORE DATA INTENSIVE SAE
TYPE MODELS, WHAT IS THE COMPANY'S PRIMARY CONCERN?**

A. As discussed by Dr. Lynch, the biggest concern appears to be the requirement for significant data on individual customer end uses. I do not disagree with Dr. Lynch that such models do require extensive data inputs based on sampling. However, many utilities have adopted such approaches and it would be appropriate, over time, for DESC to attempt to improve its energy modeling, especially for the residential class, by incorporating appliance saturation survey data into its energy forecast models.

1 **Q. YOU INDICATED THAT THE MORE SIGNIFICANT LOAD AND ENERGY**
2 **FORECASTING CONCERN RAISED IN THE ORS REPORT RELATED TO THE**
3 **RESIDENTIAL AND COMMERCIAL PEAK LOAD FORECASTS THAT**
4 **ASSUME A CONSTANT PEAK KW DEMAND PER CUSTOMER OVER A 15-**
5 **YEAR FORECAST HORIZON. HOW DID DR. LYNCH RESPOND TO THIS**
6 **CONCERN?**

7 **A.** As I indicated, the Company stated it would consider incorporating behavioral
8 factors in its analysis, though Dr. Lynch did not agree that doing so would provide benefits.
9 While I do not agree with this conclusion, the Company stated it will investigate
10 improvements in this area. Dr. Lynch's response focused on a load factor-based approach,
11 similar to the method used by DESC for the industrial class peak demand forecast.
12 However, even a load factor methodology, which would apply a load research derived
13 residential customer load factor to the Company's energy forecast, may not pick-up
14 behavioral changes in the relationship between average use per customer and average peak
15 load per customer that may be occurring on the system. The Company can evaluate this
16 type of issue by examining historical load research data and should include this type of
17 analysis in its evaluation of this issue.

18 **Q. BEGINNING ON PAGE 7 OF HIS REBUTTAL TESTIMONY, DR. LYNCH**
19 **RESPONDS TO ORS'S DISCUSSION REGARDING THE SUMMER VERSUS**
20 **WINTER PEAK DOMINANCE ON THE DESC SYSTEM. DO YOU HAVE ANY**
21 **COMMENTS ON HIS RESPONSE?**

22 **A.** Yes. First, the ORS Report did not conclude or argue that DESC was not a winter
23 peaking utility. Notwithstanding this, our analysis did demonstrate that the winter peak

dominance is driven solely by the residential class and is based on a static winter peak load per customer assumption set for 15 years. Again, changes in residential average winter peak load per customer, whether caused by improvements in end use efficiency or winter period DSM could cause a shift to a summer peak dominance.

Q. PLEASE DISCUSS DR. LYNCH'S RESPONSE TO THE ORS REPORT RELATED TO RESERVE MARGIN POLICY ISSUES?

A. As in the case of load and energy forecasting, the Company appears to be receptive to evaluating and considering a number of the concerns raised in the ORS Report on the DESC planning reserve margin. With regard to the specific ORS reserve margin recommendations, the Company has indicated in Mr. Bell's Rebuttal Testimony that in future IRPs it would provide a more detailed explanation of its inclusion of the VACAR operating reserves as part of its long term planning reserve margin, and may reevaluate the two component reserve margin approach (base and peaking) in the context of evaluating optimal economic expansion plan modeling. However, the Company does not appear to be generally receptive to either utilizing an optimal economic reserve margin methodology or a LOLE methodology to calculate, or even to validate its current base/peaking approach.

The ORS Report concluded that for the current 2020 IRP, the Company's 14% summer and 21% winter planning reserve margins were not unreasonable. The primary focus of the ORS Report regarding reserve margin issues was to provide recommendations for the Company to consider potential improvements in methodologies that could be incorporated in future DESC IRPs.

Q. HOW DID DR. LYNCH RESPOND TO SPECIFIC CONCERNS THAT ORS IDENTIFIED WITH THE COMPANY'S CURRENT RESERVE MARGIN METHODOLOGY?

A. ORS identified several specific issues that the Company should consider in future IRPs. The first concerned the inclusion of the VACAR operating reserve requirement as part of the Company's long-term planning reserve margin. While the Company indicated that it would provide a more detailed explanation of why an operating reserve requirement should be included in a planning reserve margin, Dr. Lynch provided Rebuttal Testimony that primarily focused on why it was necessary to meet the VACAR requirement in daily system operations, rather than why it should be a component of a planning reserve margin calculation.

Q. DOES ORS AGREE WITH THE COMPANY THAT MEETING THE VACAR OPERATING RESERVE REQUIREMENT IS A NECESSARY OBLIGATION TO MAINTAIN RELIABILITY ON THE DESC SYSTEM?

A. Yes, but the ORS concern is not whether the Company needs to satisfy the VACAR operating reserve requirement, but rather whether this is a proper component of a planning reserve margin calculation. The issue is whether meeting supply side and demand side risk by including generation resources over and above expected peak loads (planning reserves) does not implicitly include the capacity needed to meet day to day operating reserves.

Q. BEGINNING AT PAGE 20 OF HIS REBUTTAL TESTIMONY, DR. LYNCH RESPONDS TO THE ORS ANALYSIS OF THE COMPANY'S USE OF A SEPARATE BASE AND PEAKING RESERVE MARGIN CALCULATION. DO

**YOU HAVE ANY COMMENTS ON HIS REBUTTAL TESTIMONY ON THIS
ISSUE?**

A. Yes. While Dr. Lynch continues to support the Company's use of separate base and peaking reserve margin, he acknowledges that this is tied to the economic decision regarding the least cost economic resource additions to meet both the summer and winter peaks. Furthermore, Dr. Lynch acknowledges that this issue may become moot if the Company adopts an economic expansion plan modeling approach in the future. Regardless, this issue will be addressed in the Company's next IRP (Lynch Rebuttal at page 21).

**Q. BEGINNING ON PAGE 30 OF HIS REBUTTAL TESTIMONY, DR. LYNCH
DISCUSSES ORS'S EVALUATION OF THE COMPANY'S LOLE ANALYSIS.
DO YOU HAVE ANY RESPONSE TO HIS TESTIMONY ON THIS ISSUE?**

A. Yes. First, Dr. Lynch disagrees that the Company's LOLE analysis produces a planning reserve margin in the range of 17% to 18% and states that the correct range is 14.8% to 21.3%. This wider range cited by Dr. Lynch is based on the minimum and maximum reserve margins that were produced in the Company's alternative calculations using 30 years of load profiles. The maximum 21.3% is based on the worst-case load profile calculated using 15 years of weather conditions. While this maximum reserve margin could occur, if weather conditions generating it occurred in the future, it is essentially a reserve margin based on a load shape determined using the most extreme weather over a 15 year period. The Company's analysis does not consider the likelihood that this will occur, only that it did occur during one of the past 15 years. An LOLE analysis is designed to calculate the reserves needed to limit the number of loss of load events to 1

over a 10 year period, not to calculate the reserves needed to insure that there is no more than 1 loss of load event in 10 years, assuming 10 years of extreme weather. Also, the 21.3% reserve margin is the maximum value using 1 of the 2 methods that the Company selected to adjust 15 years of historic load profiles to the year 2019. The 21.3% value is associated with the energy adjustment method in which each of the historic load profiles over a 15 year period is scaled to meet the 2019 DESC energy. If the 2019 peaks are used to scale the historic data, the maximum reserve margin is 20.5%. The average reserve margin using all these calculations was in the range of 17% to 18%.

Q. WHAT WAS THE COMPANY'S RESPONSE TO THE ORS RECOMMENDATIONS FOR INCLUDING A MORE COMPREHENSIVE LOLE ANALYSIS AND AN OPTIMAL ECONOMIC RESERVE MARGIN ANALYSIS IN FUTURE IRPS?

A. As I indicated earlier, Mr. Bell committed the Company to discussions of these types of analyses in future IRPs with ORS and other stakeholders. However, Mr. Bell and Dr. Lynch reiterated the Company's objection to adopting any methodology that "puts our customers at increased risk of outages based on economic analyses that are disconnected from the reality of our customers' lives and expectations."¹ This position is further clarified in the Company's response to ORS AIR 10-7, which is attached as Surrebuttal Exhibit SB-1. Based on this response, it appears that the Company has formed a general opinion that using either an optimal economic reserve margin methodology or an LOLE methodology would result in a lower planning reserve margin than the Company currently uses and would place its customers at an increased risk of outages.

¹ Rebuttal Testimony of Eric Bell, p. 20.

Q. BASED ON YOUR EXPERIENCE IN OTHER JURISDICTIONS, ARE THESE CONCERNS WARRANTED?

A. No, they are not. I am familiar with both the current planning reserve margins used by Southern Company, its largest operating company, Georgia Power Company as well as by Louisville Gas and Electric Company and Kentucky Utilities. Both of these systems utilize an economic reserve margin methodology that produced an optimal economic reserve margin for the winter peak months of 26% and 25% for their respective systems. Both of these reserve margins are higher than the DESC winter peak reserve margin of 21%. While the results of an application of an economic reserve margin methodology for DESC are unknown at this point because the Company has not conducted such a study, there is simply no reason to believe that it would result in a lower planning reserve margin result than the current DESC reserve margin policy.

The purpose of utilizing an optimal economic reserve margin methodology is not to reduce required reserves, but rather to consider the impact of a number of factors in the reserve margin calculation that can be transparently evaluated directly in the methodology. For example, as discussed by Dr. Lynch on page 28 of his Rebuttal Testimony, the Company selected a 70% probability level for the DESC supply side risk, because it corresponded to the “rule of thumb” that 200 megawatts of capacity should be considered unreliable for planning purposes. While this result may be the most appropriate assumption and might correspond to the result obtained in a more comprehensive optimal economic reserve margin analysis, there is no way to know how effective the 40 year rule of thumb will be going forward, given changes that have occurred in the Company’s resource mix.

1 **Q. WILL YOU UPDATE YOUR SURREBUTTAL TESTIMONY BASED ON**
2 **INFORMATION THAT BECOMES AVAILABLE?**

3 **A.** Yes. ORS fully reserves the right to revise its recommendations via supplemental
4 testimony should new information not previously provided by the Company, or other
5 sources, becomes available.

6 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

7 **A.** Yes.

**DOMINION ENERGY SOUTH CAROLINA, INC.
OFFICE OF REGULATORY STAFF'S TENTH AND CONTINUING REQUEST
FOR PRODUCTION OF BOOKS, RECORDS AND OTHER INFORMATION
DOCKET NO. 2019-226-E**

REQUEST NO. 10-7:

Refer to the Rebuttal Testimony of Eric Bell at page 20, wherein he discusses the ORS testimony on the use of an optimal economic based reserve margin methodology. Mr. Bell expresses concern about its use as he states such things as:

...will dispute any change in our reserve margin methodology that puts our customers at increased risk of outages based on economic analyses that are disconnected from the reality of our customers' lives and expectations. We are concerned about what is being suggested here. Our customers expect us to keep their lights on. Keeping the lights on is an obligation that the Company takes very seriously

- a. Please identify in the ORS testimony or report the exact lines that appear to have led the Company to be so alarmed about what was suggested such as indicated by the statement, "we are concerned about what is being suggested here."
- b. Is the Company aware that numerous utilities in the US perform optimal economic based reserve margin analyses including TVA, Georgia Power, Louisville Gas and Electric Company, Kentucky Utilities Company, and Duke Power?
- c. Does the Company believe that those utilities and Commissions are any less concerned about "keeping the lights on?" Please provide an explanation of your answer.

RESPONSE NO. 10-7:

- a) On pages 4 and 5 of the ORS Report and the testimony of ORS witness Mr. Hayet, page 8, (lines are not numbered), ORS seems: 1) to question the inclusion of the VACAR Reserves as a component in the Company's reserve margin; 2) to require the use of an optimal economic based reserve margin methodology; and 3) to require the use of the LOLE methodology to determine a reserve margin. The Company believes the adoption of these recommendations in derogation of other methods of calculating the reserves required to ensure reliability could weaken the Company's ability to reliably serve its customers' load.
- b) The Company noted that on page 38 the ORS Report mentioned that some other utilities make calculations using this methodology. The Company also

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- noted that ORS reported that Duke Energy made the calculations but did not rely on this method to determine a reserve margin.
- c) The Company is not aware how these companies use optimal economic based reserve margin analyses (apart from Duke Energy which ORS states avoids using them in setting reserve margins apparently out of the same concerns expressed here). The Company has not reviewed the utility reserve margin studies performed by the utilities listed and is unaware of what changes if any these utilities have made to reduce the risk from undue reliance on optimal economic based reserve margin analyses.

The Company does not believe that in the abstract other utilities and their commissions are necessarily less concerned about keeping the lights on than DESC. But DESC is also not aware of how clearly those jurisdictions comprehend the potential risk to system reliability from inappropriate reliance on optimal economic based reserve margin analyses in setting reserve margins, how those jurisdictions balance reliability and cost-cutting goals, or what changes they make to their calculation to avoid injecting undue risk into the capacity planning process. Reliability, as ORS understands, is not free. The Company is aware that in the interest of cost cutting, intervenors in this and other jurisdictions have argued for using methodologies like optimal economic based reserve margin analyses to justify the regulator forcing utilities to accept greater risks of outages than DESC is willing to accept on behalf of its customers. As indicated in Dr. Lynch's rebuttal testimony, the Company believes that methodologies like LOLE can understate reliability risks for a winter peaking utility subject to significant winter spikes in load.

PERSON RESPONSIBLE: Joseph Lynch

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